

World War II Shipwrecks of Kwajalein Lagoon, Volume 1

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In-Depth Images**

Introduction

Kwajalein Atoll is one of 34 atolls or isolated islands in the Republic of the Marshall Islands, a nation made up of small islands near the eastern edge of Micronesia. The western world paid little attention to the Marshalls prior to World War II. Although originally sighted by Spanish explorers, the Marshalls were administered by Germany in the latter part of the 19th and early 20th centuries.

During World War I, Japan took possession of the islands, and was later granted a mandate to administer them by the League of Nations. By 1940, however, Japan had begun to fortify the islands in preparation for war. Kwajalein Atoll, in particular, was important both as a shipping base (at Kwajalein Island in the south) and as an air base (at Roi and Namur Islands in the north).

Within three months after the United States entered the war following the Japanese attack on Pearl Harbor, US forces made their first foray into the Kwajalein area with bombing raids on Kwajalein, Roi, and ships anchored in the lagoon. In late 1943 and early 1944, bombing raids sank several ships at Kwajalein. On January 29, bombing attacks intensified in preparation for the US invasion of the atoll, which began a few days later. By February 4, most of the atoll had been captured and many Japanese ships--the exact number still unknown--had been sent to the lagoon floor.

Although the circumstances surrounding the sinking of these ships included the tragedy of death and destruction, today these relics of the war provide for fascinating underwater exploration.

Kwajalein and several other islands within the atoll are leased from the Republic of the Marshall Islands by the United States. The leased islands are home to USAKA, the US Army Kwajalein Atoll command, which oversees several radar testing installations. Although an Army base, USAKA is populated mostly by civilian contract workers providing technical expertise and logistical support to the radar installations.

This video shows scenes from 14 of the more than 40 wrecks at Kwajalein. The remaining southern atoll wrecks will be covered in volume 2, and the northern atoll wrecks in volume 3.

The descriptions that follow each start with a time in the format xx:yy, referring to the reading in minutes and seconds from your VCR counter. If you set your VCR counter to 00:00 just as the tape starts, the reading on your counter should be able to direct you to the text that refers to that part of the tape. There are two things to keep in mind, however. First, the counter time for each and every scene is not listed; instead multiple scenes are grouped together under the time of the first in the group both to save space and facilitate the discussion. The number of scenes in a group follows the discussion in parentheses (e.g., 2 scenes of the Concrete Barge below). Second, we do not mean for you to try to follow along in the book while you watch the tape. You won't be able to keep up. Watch and enjoy the tape without referring to the book. Then perhaps read through the book to find areas of interest to be watched for on the next viewing.

Concrete Barge

00:00 Limited steel supplies during World War II led to the building of a number of supply barges from concrete rather than steel. After the war, they were no longer needed. One was scuttled as a breakwater for the small harbor on Ennylabegan (Carlos) Island, which is otherwise exposed to the northeast trade winds. (2)

Prinz Eugen

00:15 The German heavy cruiser Prinz Eugen lies near the north end of Ennubuj (Carlson) Island. The Eugen gained considerable fame during World War II as an escort to the battleship Bismarck during battles in the North Atlantic. The Bismarck and the Eugen sank the British battle cruiser Hood, but the Bismarck was tracked down and sunk a few days later. The Eugen escaped and had further wartime adventures in the English Channel and North Sea. Captured at the end of the war, she was brought to Bikini Atoll for two nuclear tests in 1946. After the tests, the Eugen and the other surviving test ships were taken to Kwajalein. While awaiting her final fate, the Eugen developed a leak and began listing. A decision was made to beach her to prevent sinking, but this all happened during a period of strong trade winds when Kwaj's larger tug was not in port. The small tug remaining did not have the power to beach the Eugen in the planned spot upwind, so they tried to run her up on the downwind reef. The strong winds overpowered the tug, however, and the Eugen struck the reef off Ennubuj broadside, flipping over and sinking on December 22, 1946. Today, a prop and rudder protrude from the water, while her bow rests about 110 feet below the surface. See the references for more detailed information on the Prinz Eugen. (4)

Shonan Maru

00:47 The boiler from the Shonan Maru #6 peeks through the water's surface off Gehh Island. The Shonan ran aground while under attack during the US invasion of Kwajalein. The crew disembarked on Gehh and put up stiff resistance to American forces taking the island. Prior to being blown apart, the Shonan was searched yielding maps and charts that proved invaluable to the US forces in their progress across Micronesia. In the 54 years since the Shonan went up on the reef, the elements have taken their toll. What's left of the ship lies on the lagoon shore of Gehh exposed to the relentless trade winds, causing choppy conditions that slowly pound the remnants of this ship apart. Diving the Shonan is covered later in this tape. (1)

00:52 A Pacific map shows the location of Kwajalein. The map is not drawn to scale to fit the TV screen size. (1)

Akibasan Maru - P-Buoy

01:00 – 05:03

01:00 The Akibasan Maru is a 4,607 ton freighter measuring 389 feet in length with a beam of 50 feet. The ship is locally known as P-Buoy for the buoy that used to mark the wreck, even though the buoy is now long gone. This ship was sunk by US aircraft on January 30, 1944. Like many of the Kwajalein lagoon wrecks, the Akibasan was first dove by Navy divers soon after the capture of Kwajalein. The ships were easy to find then due to the distinct oil slicks that marked their sinking places. These divers opened the ships' safes in search of war-related documents. In some cases, wrecks that reached too close to the surface had their shallow structures blown off to keep them from obstructing navigation. After this the ships were apparently more or less ignored until the mid 1960s when several divers, particularly Dick Krepps, Dave Hurlbut, and Norm

Williams, in the fledgling Kwajalein Scuba Club decided to search for them. Using some old rough maps, these divers began dragging an anchor on a long line from a small boat. Late in the summer of 1965, they hooked the Akibasan Maru, and the sport of Kwaj wreck diving began to take off. The second scene is a map showing the relative location of the Akibasan Maru within the Kwajalein anchorage. This and the other maps in this tape are a bit rough. The ship being filmed in each segment is circled and pointed out by a small arrow. Not all the wrecks figured on the charts are covered in this tape; the rest will be shown in volume 2. (2)

01:06 This video tour begins near the stern and works more or less forward to the bow. Presently, the mooring line on this ship is next to the rear mastpost, which is usually the first sight a diver sees descending onto the Akibasan. Shallow enough for good coral growth, the mastposts are an interesting sight on your way up or down. The mastposts form a resting spots for the occasional green sea turtle (*Chelonia mydas*). This green sea turtle seems to be the one spotted here often. Sea turtles at Kwajalein are still captured by Marshallese for food, so even when accustomed to divers, they remain a bit wary. After leaving the mastpost, the turtle glides down towards the fantail of the wreck. (4)

01:22 Dropping down over the fantail, you see that the only remnants of the upper cabins are the steel girders and railings; the wooden walls and ceilings have long since rotted away. From the main deck, a ladder leads up to the fantail. The fantail was once stocked with depth charges, presumably still live and able to go off: possibly even set to go off just a few feet deeper than where they finally came to rest. These were removed by ordnance personnel some years ago. Animals on the fantail include bannerfish (*Heniochus*) and innumerable translucent cardinal fish (family Apogonidae). Schools of these fish often develop around lagoon bottom obstructions, and such large numbers of "bait fish" often attract numerous larger predators to feed upon them. Such aggregations of fish are sporadic, as the scenes on this tape show. During some periods, the fish are thick enough to obscure the view of the wreckage; other times they seem hardly present at all. (7)

01:53 Sitting at the stern is the ship's log which once was used to determine the ship's speed. Now the log supports a bush of branching *Acropora* coral, seen up close in the second and third scenes. Alas, this colony of coral, mostly alive but a year ago, is now mostly dead. Just over the lip of the fantail, orange cup corals (*Tubastraea coccinea*) and red encrusting sponges grow prolifically on the shadowed hull. Just inside are the massive gears for turning the rudder. Near the gears, a metal box and glass beer bottle are cemented to the wall. A doorway from this room leads out onto the lower deck. (8)

02:14 The turtle seen earlier had come to rest on the fantail. We follow him, then cross the aft cargo holds heading forward. A diver swims over the mostly open engine room hatch covers. Looking down through one of those hatch covers, we see walkways above the engine and a door to the outside on the lower deck. Moving back to cargo hold #4, a long vertical gash in the side of the hull shows why the ship sank quickly. Forward of the engine hatches is the smokestack. Vents next to the stack helped funnel air down to the engines. (9)

02:43 The main cabin area of the ship is between the stack and forward holds. The bridge was located right on top, but is now gone. Swimming over the bridge, you can look down through the steel girders that once supported wooden walls, decks, and ceilings. *Teredo* "worms" (which are not worms but rather clam shells that bore into wood) and general rot have dissolved the wood, leaving only the steel supports. The remains of the wood now rest at the bottom of the rooms, which along with any other organic material in the ship, has decomposed into a fine oozy muck that is easy to stir up and can obscure a diver's vision. The lowest deck had a metal ceiling,

which is still intact. A bathtub sits in what is thought to be the ship's pharmacy; for a long time, this was a premiere attraction on the Akibasan. It wasn't the bathtub itself that was so interesting, but rather the unexploded 500-pound bomb that had come to rest right next to it. The falling bomb even chipped the near corner of the tub itself, although the algae and debris on it makes the damage hard to see. The bomb was removed and disposed of by ordnance divers in the late 70s. Lighting the wall next to a porthole reveals brilliantly colored encrusting sponges. (7)

03:05 A gangway runs down the side of the superstructure along the port rail. Green *Halimeda* algae, looking like strings of connected disks, is common on the wrecks and is seen here clumping up on the wall at right. This algae produces disk-like calcium carbonate skeleton, producing flake sand when the algae dies. (3)

03:19 This scene takes us out over one of the cargo holds. The next few scenes are from inside the second hold from the bow, showing some of the cargo the ship was carrying when she sank, including compressed gas cylinders, single airplane propellers, dented seaplane pontoons, shoes, broken bottles, wheels (reportedly for fire extinguishers), and metal pans. This hold was once called the saki bottle hold for the hundreds of large bottles it contained. Swimming through it in the 1960s, you could see a field of bottle necks protruding from the muck. Some of the bottles had held air, and were floating up against the ceiling, some hanging top down and resembling stalactites. Now, an intact saki bottle is a rare find. (9)

03:48 Coming up and out of the hold, we look into the foc's'le. Above the foc's'le doors, the mount for a gun stands on the bow. The gun itself is missing, possibly having fallen off while the ship was sinking. From the bow, the gun mount is seen behind the anchor winch. The winch is surrounded by a cloud of clear cardinal fish. Looking at the anchor winch from the side, you can see the clouds of fish using it as shelter. The chain that the winch would pull up was fed into a hole in the deck for stowage. Moving forward, we pan up the bow. The anchor chain is deployed on the port side of the ship. (11)

04:37 It's getting time to start heading back up. We swim aft along the port rail and down a ladder. Back at the aft mast, we climb the ladder up the post, which is encrusted with algae and colorful sponges. Tucked in an overhang under the mastpost head, some bright yellow tunicates (*Phallusia julinea*) filter water amid colorful sponges and tube corals. Clown fish (*Amphiprion tricinetus*) nestle among the tentacles of an anemone (which actually sits on top of the bridge). Back at the base of the aft mastpost, we pan upward along the post and the cable holding the ship marker buoy. On ascent, a diver pauses to look at some of the life on the masthead. (8)

Ikuta Maru - P-North

05:04 – 07:06

05:04 The Ikuta Maru was a 2,968-ton freighter that carried considerable armament. It is locally called P-North due to its location to the north (and slightly west) of what was once P-buoy. She was originally located by anchor drag in January 1966. The ship lies facing northeast, with her port side lying on a bottom as deep as 180 feet, although immediately under the bow, a rise in the lagoon bottom brings it up to about 150 feet. Fortunately, most of the ship, along with the main attractions, can be seen on dives that stay within the 130 foot sport diving limit. The biggest attractions on the Ikuta are three big guns, one on each side in front of the bridge and one on the bow. Reported to be 5-inch guns, they actually appear to be a bit smaller. There are also machine guns on top of the bridge. The stern of this vessel was completely blown away, and its remains lie some distance behind the rest of the hull. (2)

05:09 The mooring buoy for this wreck is presently attached near the bow of the ship. A diver passes over the bow's starboard rail and proceeds past the bow gun. This gun points upward as

though it was in use during the attack On the starboard side of the foc's'le, a ladder comes down to the main deck level from the bow. The orientation of a wreck lying on its side gives a puzzling perspective to such ordinary features as ladders and doors. It takes a while to get accustomed to it. Just under the ladder is the door leading into the starboard foc's'le. The door has been tied open to the ladder. Most likely this door was opened and then tied that way by divers during the late 60s and early 70s who wanted to explore the rooms (7)

05:39 Coming back from the bow toward the bridge, the forward set of mastposts extend horizontally out over the bottom. In 1969, I was in the dive party with the individual who found the ship's bell hanging between these posts. Just past the posts is a deck winch. Moving shallower and continuing back toward the bridge, we pass over the starboard gun. Notice all the lines tied to the gun barrel. During the early days of diving this wreck in the 60s, the buoy lines were often tied to this gun barrel. Dropping beneath, we look back at the gun against the surface light. (5)

06:12 A short distance aft of the starboard gun is the superstructure and bridge. A diver passes over the starboard side of the superstructure's front side. Nearby, on the front face of the superstructure cabins, several more moorish idols (*Zanclus cornutus*) graze on wreck growth and pass in and out of portholes. Bringing the camera up, a diver is seen swimming over the machine gun mount on top of the bridge. If you look close, you can see a sea anemone on the near side of the mount. Viewed from above, the base of the gun extends below its own floor down into the superstructure. On top, the remains of the machine gun itself are disguised by a resident colony of coral. (8)

06:46 Looking at the superstructure behind the bridge, the wooden decking and ceilings have rotted away, leaving an open framework of steel supports. The steel walls of the superstructure, however, are still intact. Moving in through the open roof, we look up and see the line of portholes that now face upward. A bit of silt disturbed by a diver swimming by is billowing down through the porthole. Amidships, a ladder runs up the forward side of the smokestack Not too much farther aft, the ship becomes a tangle of twisted metal from the blast that blew off the stern. Returning to the starboard gun, a diver passes over it on his way back to the buoy line to begin the ascent to the surface. (5)

G-Buoy Wreck

07:07 – 08:36

07:07 G-Buoy is the name given to an unidentified wreck close to Kwajalein harbor, just north of the buoy marked with a G. This mostly open ship, first located in the summer of 1966, is about 115 feet long lies on her port side in about 75 feet of water. It can often be seen from the surface, or even from a boat. In 1968, after spending several dives looking for this reported wreck in the wrong area, we accidentally spotted it when we drove over it at full speed in a boat on a calm, clear day; we could see the hull below as we passed over. (2)

07:12 The bow of the G-buoy wreck shows through the plankton and mucous-filled water. Periodically, lagoon water fills with mucous droplets (“egg drop soup”), mostly secreted by corals but some probably from other animals such as fish and mollusks as well. This mucous can be an important food source for some mid-water animals. From amidships, a pair of moorish idols swimming over the hull toward the bow. Toward the stern, fish graze on the algae growing on the metal, and divers' bubbles rise in the background. Crossing over the hull to the bottom of the ship, the moorish idols pass in front of the propeller. Nearby on the bottom, two artillery shells corrode away. Although a bit difficult to see in this scene due to the covering of algae and detritus, the brass casings on these shells are in pretty good shape, while the steel heads are

heavily corroded. When in sea water, certain kinds of metal corrode more quickly than others, and when these are in contact, the corrosion on the one sort of protects the other. Nearby, resting on the side of the ship's cabins, is a brass mesh cylinder of unknown purpose. (8)

07:45 A few corals grow on the wreck. A small razor coral (*Fungia*) was filmed in natural light at a depth of about 60 feet, so it must be giving off its own light; all the orange is filtered out of sunlight before it reaches this depth. A fan coral grows in the shadow of the wreckage. This wreck has only a small cabin area near the stern. Most of the ship contains open small holds. The holds and engine room are often filled with schools of cardinal fish seeking shelter. A pair of moorish idols mill about just outside the engine room. (7)

08:19 A diver peers over the edge of the hull. Nearer the bow, a diver swims over the hull before rising to the surface. The last view of the wreck is the stern from the surface. (4 or 3???)

Tyoko Maru – Barracuda Junction

08:37 – 11:28

08:37 The Tyoko Maru (also called Choko Maru in some books) is locally known as Barracuda Junction for the barracuda that used to hang around there after the ship was discovered. The Tyoko was located in December 1965 using a Heathkit fathometer. The ship is a 3,535 ton freighter lying on her port side in about 140 feet of water. She was sunk by US aircraft on December 5, 1943, and apparently burned badly before sinking. Diving on her in the 60s, one could see that most of the portholes contained completely shattered glass, which might indicate they were very hot when they touched the water. (2)

08:43 The mooring buoy on the Tyoko is presently affixed amidships in the vicinity of the superstructure. As we drop deeper, the hull and superstructure come into clearer view. Moving to the bow, the anchor chains dangle from the bow to the bottom in the dark shadow of the ship. Coming back from the bow, we cross the bow gun, still pointing upward to repel attacking planes. Moving in close to the gun, we sight along its barrel towards the surface more than 100 feet away. Next to the gun are several open ammunition boxes; a diver examines one that has a couple of artillery shells remaining inside. Up close, we see that the brass shells are coated with colored sponges. Nearby, two raccoon butterflyfish (*Chaetodon lunula*) forage amidst the structures near the foc's'le. (10)

09:26 An open door leads into the foc's'le. Just inside and down is another open hatch. A porthole in the wall of the foc's'le has a number of tiny swimming creatures darting about in front of it. Just outside again, two bannerfish (*Heniochus acuminatus*) vanish over the foc's'le roof. Moving back from the bow toward the main superstructure, we pass over a pair of large funnels. A diver looks into one of the ship's holds. This hold is filled with large cement pipe, which shifted when the ship went down on its side. (7)

09:49 From the bow we swim back toward the superstructure along the starboard gunnel. Coral colonies grow here and there, providing refuge for small fish. Stinging feathery hydroids, which are related to the corals, are dense around some openings. Within the gangway near where the mooring buoy attaches, a porthole "breathes," pushing feathery, stinging hydroids outward. Apparently slight variations in pressure push water in and out the holes. (7)

10:17 Several scenes show the bridge and superstructure area aft of the bridge. *Halimeda* algae grows thickly on many surfaces. Below, a diver swims along what was the port wall of a cabin, which is now the floor. The diver makes a left turn at the front wall and comes out through the open ceiling. Because the shelter provided by wrecks attracts multitudes of small fish, so too are attracted the predators, such as this grouper (*Epinephelus polyphkadion*). The small cardinalfish passing in front of the camera provide the grouper with a plentiful supply of food. A small

cleaner shrimp can be seen scouring the grouper's body, looking for parasites to pick off. Zooming in, we get a closer shot of the grouper with its wandering cleaner shrimp. It must feel a bit strange to have a shrimp walking over your eyeballs. Note the grouper's sharp teeth. A wreck also provides solid attachment points for a variety of sessile marine organisms, such as this rock oyster firmly cemented to the steel girders. Bright red sponge covers the clam's shell. A diver passes on the other side of a the porthole. Using artificial lights, the encrusting sponges on the walls of the room show off their colors. Above, three moorish idols dip down through a door before continuing on their way. (11)

10:59 Moving a bit aft of the superstructure, we look back forward and see bubbles from divers rising up along the cabins. Turning around reveals the fantail in the distance, where the next few scenes are shot. Our tour of the Tyoko Maru ends with a diver passing between the ship's propeller and rudder. (7)

Safety Stop

11:29 – 13:19

11:29 Many of the wrecks at Kwajalein are relatively deep. It is always wise to make a safety stop at about 20 feet at the end of a deeper dive to reduce chances of decompression sickness (DCS, also called "the bends"). I like making a safety stop of at least 10 minutes, in part for added safety but also to enjoy the sights you see while hanging in open water beneath a boat. A look upward during ascent reveals the boat moored to the buoy line above. Many of the wrecks with mooring buoys have a subsurface buoy attached to the wreck by stainless steel cable. From the subsurface buoy, a line leads to a surface buoy to which the dive boat ties up. Here, the cable below the subsurface buoy is thickly overgrown with gooseneck barnacles (*Lepas*), animals related to crabs and shrimp. Their legs, seen extending from the shells in the close up view, are modified into nets used to capture plankton and small animals, which are the drawn into the shell and consumed. (6)

11:49 When a buoy cable has been in place a long time, the sponge colonies on it can grow quite large, providing refuge for a number of other animals, such as brittle stars, fish, and snails. Adhering directly to the algae covered cable, a carnivorous sea shell (*Cymatium muricinum*) makes its living consuming clams attached to the line. How can they hold on so well? Growing on the cable right beneath the subsurface buoy, this translucent tunicate (*Rhopalaea*) is another filter feeder. It spends all its time sucking water in one opening, filtering it for plankton, and pumping the filtered water out the other opening. Sponge openings can be protective holes for small fish known locally as buoy blennies (*Petroscirtes mitratus*). (5)

12:05 Juvenile specimens of more open water kinds of fish will often use the buoy and line as a bit of protection. It gives them something to hide behind when something larger comes by. A diver's bubble coming past scares a juvenile jack momentarily, but it quickly returns to the protection of the buoy. Certain filefish (*Aluterus*) eat the small feathery hydroids growing on the lines, and hide behind the lines at the approach of large, menacing objects (such as divers). A bit larger individual samples the taste of the clip line hanging from the dive boat. Larger fish hang around buoy lines as well. A large bat fish (*Platax orbicularis*) comes in close to the camera to munch something unseen. It chews it up as it goes by. Bats often travel in schools, looking for mucous drops and plankton to eat. (6)

12:29 Sometimes the safety stop is just a good place to take a rest and "hang out" before climbing back into a bouncing boat. (4)

12:40 Jellyfish form another safety stop attraction. First an unidentified long-tentacled jellyfish pulsates by. Next, a short-tentacled jellyfish (possibly *Cephea cephea*) beats its way upward. As

he moves shallower, clouds are visible through the calm surface above. A tiny spotted jellyfish (*Mastigias papua*) races past. Finally, another long tentacled jellyfish (*Aequorea australis*) comes between the camera and the sun. (5)

13:02 Safety stop is a great place to practice blowing bubble rings. In the second scene, watch the bubbles near the ring. The spinning torus of air generates a current in the surrounding water that carries smaller bubbles around and around. (3)

South Carlson Barge

13:20 – 13:38

13:20 A small barge rests in about 60 feet of water on the sandy slope between Carlson (Ennubuj) Island and Sar Pass. The first shot of it pans along its entire length. On the downslope side of the barge, numerous whip corals grow out into the sunlight from the shadow made by the hull. A juvenile emperor angelfish (*Pomacanthus imperator*) swims around a valve handle just inside the barge. Sometimes a nurse shark sleeps in here, and there is at least one large moray eel that makes this barge his abode. (5)

Rubble Wrecks

13:39 – 15:38

13:39 Rubble wrecks are just what the name implies: piles of rubble. Generally, the pile bears little resemblance to a ship. These wrecks fall into a couple of different categories. Steel ships sunk in very shallow water are rendered into small pieces of metal by the relentless elements, although often they were helped along by wartime explosives. Other ships possessed wooden hulls; rot, shipworms (*Teredo* mollusks), and possibly fires prior to sinking eats away the wood, leaving any metal parts, such as the engine or fuel tanks, in a mixed up pile of debris on the bottom. On the map, the South Pass Sub Chaser is along the reef northwest of Ennubuj Island; the Shonan Maru is near Gehh; and the Gugegue rubble wrecks are west of Gugegue. (2)

South Pass Auxiliary Sub Chaser

13:46 – 14:28

13:46 The South Pass sub chaser is a rubble wreck sunk on the sandy slope a few hundred yards southeast of South Pass. It was discovered in 1986 by Bevan Jacobs, Mike Mouris, Buck Jacobs, and Craig Wagner. The wooden hull of the wreck is completely gone. The metallic remains are scattered over a hundred feet or so, down to a maximum depth of about 90 feet at the bottom. We begin at the "bow" on the sandy slope at about 60 feet, then pan to the right and down the slope. Threadfin butterflyfish (*Chaetodon auriga*) pass over the wreckage. Moving down from the bow, we pass over boxes, pipes, and piles of junk. Surrounded by a mostly bare sand slope, many fish have congregated around the protection afforded by the piles of rubble. (6)

14:12 Some of the debris is scattered widely. Not far from the ship, a finned tube rests on the sand. In the shallow water, nearly up on the top of the slope, an open box forms a habitat for reef fishes. A pair of lion fish (*Pterois antennata*) inhabit the box. The wreck also sports many colonies of bubble coral (*Pleurogyra sinuosa*). Here, two colonies of different shades come together. (4)

Shonan Maru #6

14:28 – 14:55

14:28 The Shonan Maru #6 is one of the few rubble wrecks that has been positively identified. Wartime photos of the intact ship grounded on Gehh Island were taken, and the markings on the ship in the photo were used to confirm the identification. The ship ran aground here, on the lagoon side of the fifth island up the west reef from Kwajalein, while under attack in an attempt to escape the lagoon during the invasion. The ship was subsequently blown up, and more than 50

years of exposure to the tradewind generated seas have pounded the remains of the ship to pieces. The pointed section in very shallow water may be the remains of the bow. The gearing on the large deck winches have maintained their shape. The propeller is still recognizable. Interestingly, the propeller and shaft now lie shifted 180 degrees from the direction they must have been facing when the ship ran aground. Bombing or subsequent storms must have flipped them around. A mast still lies along the bottom, with what might be the remains of a crow's nest near the top. (7)

South Gugeegue Rubble Wreck

14:55 – 15:16

14:55 This is one of at least three rubble wrecks known from Gugeegue, and one of two covered in this tape. This wooden hulled vessel sank at the edge of the lagoon slope near the south end of Gugeegue Island at a depth of about 50 to 70 feet. Again, the wood is mostly gone, although some of the old hull remains partly buried in sand. Looking aft from what would have been the vicinity of the foredeck, we see the largest intact chunk of the ship, the engine. Moving aft, we see the propeller shaft, but the prop itself is long gone. Near the stern, some wooden planking remains at the bottom of the hull. Passing the engine and heading towards the bow, the old hull cross pieces are visible in the sand. The forward area is loaded with rounded ballast stones. This kind of rock is an unusual sight in a coral atoll, which has no natural rock like this. (6)

Mid Gugeegue Rubble Wreck

15:16 – 15:38

15:16 The second Gugeegue rubble wreck is off the lagoon slope just south of Gugeegue pier. This wreck, discovered in the early 1990s, rests on a bottom of 70 to 80 feet and is similar in its remains to the other Gugeegue rubble wreck. Approaching the wreck from the bow, we see the metal boxes, fuel tanks, and engine block fading off in the distance behind. Look closely at the tip of the bow on the forward left; the anchor is still in its stowed position, suggesting the ship may have been underway when sunk. A closer view shows the anchor. All the way aft, a diver passes over the remains of the stern. (6)

Shell Island Wreck

15:39 – 18:31

15:39 Just south of Gugeegue is Ebwaj, locally called Shell Island. Since the 60s, this island has been a popular place to look for some of the common cowry shells. The Shell Island wreck was first discovered in early 1969, when a group of shell collectors that included one of the authors of these notes wandered down the lagoon slope just south of the Shell Island pier and found themselves in the shadow of a ship's hull. This unidentified ship is about 110 feet long and has a typical trawler or whaler configuration, with small holds on the foredeck, a substantial bowsprit, and a central bridge just forward of the engine. It rests upright on a bottom of 100 feet with a heading of north, parallel to the shoreline. Pages 89 and 90 of Miller's *In the Arms of the Sea* shows this ship sinking. (2)

15:44 This wreck is just a short swim off the lagoon slope. Bubbles from another diver rise up from behind the bow as we approach from the reef. The bow stretches out in a long bowsprit, seen from below as a diver swims over. Just back from the bow, the remains of a doorway lead down into the foc's'le. Now it is easier to get into the foc's'le right through the roof, where the wooden decking has rotted away, opening up the interior. Some of the holds are still intact; in one near the bridge is a saki bottle sticking out of the mucky bottom. (7)

16:16 From inside the hold, we look upward and out at the ship's wheelhouse above. Rising up from the hold, we look back on the bridge. On this day, the ship is loaded with small cardinalfish. The sheer numbers of fish can obscure a diver's view of the wreck itself. But they don't last. So many bait fish attracts the predators; in this case, a small school of ulua or jacks patrols the shipwreck. On another day, the cardinalfish are conspicuously absent from the bridge. A diver passes on the starboard side of the bridge. Amidships on the starboard side, a door leads into the small superstructure. At the right, a grouper swims into a porthole at the very end of one scene. (7)

16:42 Along the port rail, we look through the broken walls of the cabins to the other side. On the front of the bridge, the front wall of the captain's cabin is broken down, allowing easy access to the engine room. A passageway aft and a catwalk over the engine are visible from the front. The view is different a few months later, when the swarms of cardinalfish are present. The catwalk is almost invisible through the cloud of fish. Looking across the room, the thick school blocks light from the opposite doorway fewer than 10 feet away. (8)

17:21 Along the starboard gangway, a look toward the stern reveals many cardinalfish and a few larger species. In the other direction (on a day without cardinalfish), a pair of moorish idols cross. Passing aft through the port passageway, we reach the stern. Just over the rail, near the stern of the starboard side, a diver examines the propeller and rudder. Colorful corals and sponges cover all possible surfaces. (7)

17:54 Looking forward from the stern across the cabin structure, patrolling ulua again pass over their herd of cardinals. Lifeboat davits can be seen behind. Sponges and corals grow on the stack and davits. Sponge colonies grow on the davits and bubble coral on the stack. Another sponge colony is surrounded by blue damsels. Spooked, the fish all dive towards the shelter of the sponge. Ulua pass behind the opening to a funnel. A ladder runs up the aft wall of the wheelhouse. On top, two groupers jostle for position; they too are predators and have been well fed by the schools of cardinalfish. Rising up we look down upon the wheelhouse from upper starboard. (8)

South Shell Wreck ("Huff Maru")

18:32 – 23:04

18:32 This unidentified wreck is very similar in its size and configuration to the Shell Island wreck. It lies southwest of that one perhaps 150 to 200 yards from the lagoon slope, and is upright on a 130-foot bottom with a northeast heading. (2)

Most often, wrecks have been discovered through research, persistence, and hard work. But sometimes someone stumbles upon one through sheer dumb luck. The photographer describes one such find:

“One day in March, 1996, we were diving Shell Island looking for manta rays to photograph. The rays weren't cooperating that day, so I dropped down to the base of the lagoon slope to examine a coralhead. Once there, I saw a larger coralhead offshore and swam towards it. About halfway there, my eye caught a movement off to my right. I turned and looked, and there was a seven foot long grouper staring at me from about 30 to 40 feet away. It looked big enough to be a submarine. After staring in awe for a moment, I remembered: the camera! I shot some video, but the grouper was shy and eased off into the depths. I didn't have time to follow, so I returned to the reef.

“But a month later, on April 7, 1996, we returned to seek him out. We found the exact spot and dropped down the slope. No grouper. Well, he went thataway. Outward and northward we swam, following the path he took a month before. The trail was cold and we saw no sign of him. The

bottom dropped away below us, and after 10 or 15 minutes of swimming, we were running short of bottom time. Reluctantly, we checked the compass, turned east, and began swimming back toward the reef. Shortly, a ledge began to appear at some distance ahead and to the right. Aha! Maybe the grouper lives in that ledge. We turned toward it. But as we approached, the ledge turned out to have a surprisingly regular shape. It had some boxy-looking things above it. And it had a rudder and propeller underneath it. A ship! My first thought was 'Wow, we sure are better swimmers than I thought to make it all the way to the Shell wreck. But wait. The bottom at the Shell wreck is 100 feet—I'm at 100 now and the deck is still below me. It's something new!' ”

Well, not completely. The portholes were empty. It took a while, but we finally tracked down the history of its first discovery.

This wreck was first located in 1971. Avid ship diver Duane Huff spotted an oil slick off Shell Island from the Caribou aircraft carrying him home from work on Meck Island. Upon landing at Kwajalein, he called three wreck diving friends, and they hopped into a boat and headed toward Shell. Each buddy pair took turns dragging the other pair around on the end of the anchor line. After some searching, at the end of the tow for Don and Dale Anson, the pair spotted a smokestack coming out of a coralhead. As Don later pointed out, a smokestack is an unusual feature for a coralhead, so they dropped down to investigate. Not surprisingly, the dark shape beneath the stack was not a coralhead after all. No identification of the wreck was ever found, so they called it the Huff Maru, since Duane's sharp eyes led them to it.

The location and existence of this wreck was kept rather quiet. By the late 80s, it was pretty much forgotten. So forgotten that when we stumbled upon it in chasing a runaway grouper, it came as a complete surprise.

Even though the wreck was not entirely new, the pleasure of discovery, of experiencing the unexpected, was a treat.

But we never did see the grouper again.

18:39 The moment of discovery. The rounded stern slowly comes into view as we approach. Just forward on the starboard side is the blow that sank the ship. This large hole in the side must have filled the hull with water quickly. Interestingly, the edges of the hole and the torn metal bending upwards around the deck hatchway suggest that the blast came from inside. The bomb or torpedo may have penetrated the hull before detonating. A diver passes by outside the hole.

(3)

19:04 Under the fantail, the propeller is coated with red sponge. The rudder too has a red sponge coat and a fan coral growing on its edge. Whip corals and black coral encrust the undersurface of the fantail. Rising to the deck, a diver swims along the gangway, passing the hatchway bent outward by the blast down below. The diver looks into the galley door, on the starboard side near the stern. Inside the galley, stoves are present along the aft wall. Across the galley, a doorway opens up into the hallway. On the wall, a porthole reveals algae hanging down on the outside. (9)

19:40 Above the galley area, the decks have rotted away exposing the rooms below. Swimming forward, we pass the base of the broken and long gone mastpost. The smokestack is ahead. From a bit more port, we look forward towards the bridge. Between the camera and the wheelhouse, the engine cover hatches lead down into the engine room. We look into the hatches down at the engine below. On the port side is a ladder that leads to the cramped floor of the engine room. A grated catwalk leads into a hallway toward aft above and to port of the engine. On the aft wall, a gauge is no longer readable. (7)

20:15 In the shadow of the engine hatch, on one of the girders crossing the engine room above the engine, a pale bubble coral (*Pleurogyra sinuosa*) struggles to survive in an area of limited sunlight. Its color suggests that it has not had enough light to retain the symbiotic microscopic algae present in most reef building corals. Another coral (*Favia*), more exposed to sunlight, exhibits yellow polyps against the brown base. Still another (*Lobophyllia*) shows some pink color, an unusual sight when not using lights 100 feet below the surface. For pink to show up here, the coral must be generating some light of its own. (3)

20:29 Moving out to the starboard side of the foredeck, a mixed school of two different species of caesionids comes down over the holds, and an emperor angelfish (*Pomacanthus imperator*) comes into the scene from the opposite direction. Near the bow is a door leading down into the foc's'le. As we approach, tiny fish move out of the way. Leaning into the foc's'le and looking down, we see an old ladder lying in the fine silty muck. Like the other Shell Island wreck, this modified trawler/whaler has an extensive bowsprit. A school of caesionids drops down and splits to go around the sprit. From the front of the vessel, we look back directly onto the bow, panning upward to see the bowsprit silhouetted against the light diffusing down from the surface. Rising up over the bowsprit, we look aft toward the anchor winch. From the starboard side, we can see the length of the bowsprit. A plating coral grows on the near edge. Panning left, we look across the entire foredeck back to the bridge. Square openings into the holds run down the centerline of the foredeck. Moving aft to right in front of the bridge, a bat fish passes in front of the captain's cabin and heads over toward the port rail. (10)

21:30 On the port gangway, a diver looks into the captain's cabin just below the wheelhouse. Looking into the captain's cabin from its starboard door, we see the diver in the port doorway lean into the door and pull a china bowl out of the muck. The diver dumps the muck out of the bowl, then replaces it into the sediment. Notice how easy it is to stir up brown clouds of silt, which can easily obscure a diver's vision. Back on the fantail, the bottom of a rice bowl is noticed partly buried in the sediment. A diver digs the bowl out of the bottom to take a look at it. (6)

22:13 The camera approaches the bridge from the front. After moving to the rear of the bridge, we look forward over the helm through wheelhouse. On the floor to the right of the helm is a hatch going down into the captain's cabin. Left of the helm, a voice tube that allowed communication between the pilot and engine room is somewhat bent over and covered with colorful encrusting sponges. Moving above the ship, we look down upon the aft section, showing the smokestack and stern. From starboard and above, we pan the entire ship from stern to bow. It was an unusually clear day. (5)

Daisan Maru

23:05 – 26:43

23:05 The Daisan Maru is a 130-foot long former whaler sunk on January 30, 1944. She lies upright with a slight list to port, off the southern portion of Gugeegue Island on a maximum bottom depth of about 145 feet. She was discovered by Mark Miller on January 23, 1991, using depth sounding equipment, after considerable research of old battle reports and wartime photographs suggested something should be in that area. Partly because of her location relatively close to Bigej Pass, and partly because of her recent discovery, the Daisan is extensively covered with bushes of black coral, providing shelter to attract large numbers of small fish as well as the larger fish to eat them. This kind of scenery makes a dive on the Daisan interesting and enjoyable. (2)

23:12 Looking straight down on the bow, we see the bow gun, which points aft. Dropping all the way down to the port side shows the gun covered with marine growths. A similar scene on another day shows the gun shrouded in a dense school of cardinalfish. Moving closer to the gun barrel, the fish school and whip corals rising from the deck present an eerie appearance. Just aft of the bow gun, whip corals, black corals, and algae decorate a door leading down into the forward area of the ship. Moving closer, the doorway is packed with cardinalfish. Turning around to face aft, the bridge is visible with divers coming up along the port side. Between the bow gun and the bridge, a large winch takes up much of the foredeck. Around the winch, a mixed group of similarly colored moorish idols and bannerfish mill around. One of the bannerfish swims by in front of the camera. Although they somewhat resemble each other, these fish are in different families. Moorish idols are in their own family, with a probable distant kinship with the tangs. Bannerfish are a kind of butterflyfish. (10)

23:54 From the deck just in front of the bridge, the camera looks down the starboard gangway toward aft. A door containing a porthole is open. Moving in close to the door and porthole, the multicolored sponges become apparent. There is a fan coral or gorgonian (*Subergorgia mollis*) filling up most of the port. From the same doorway, past other orange fan corals, we look into and through the room, seeing light coming through from the other side. Numerous cardinalfish and other fish fill the entire bridge superstructure.(9)

24:30 Looking down through the girders that supported the now missing roof, we barely see a diver peeking into the bridge from the rear. Exhalant bubbles scare some fish. Moving back to the upper port side, the ship's entire bridge comes into view. Dropping straight down, we see the ship is cracked from deck to keel right in front of the bridge; this crack extends across the deck and down the starboard side as well. The hull likely split when it impacted the lagoon bottom. From the top of the bridge, we swim aft to the vicinity of the engine hatch covers.

A snapper (*Aphareus furca*) passes in front of the camera. A large air vent goes by to the right. Through the hatch covers, what are apparently portions of the engine are visible. Off to the side, a long unused vise sits on a stand above a grated catwalk. (7)

24:59 A large air vent amidships forms a platform for various marine growths. As we move in close to the vent, we see on its top a juvenile puppydog snapper (*Macolor macularis*) hovering over a small bush of black coral. Divers explore the top of the wreck. Some of the life consists of sponge colonies, blue damselfish, and the ever-present orange fan corals. (7)

25:28 Fish swim down through the open roof of the starboard gangway. Within the gangway just is a ladder leading up to the upper deck. This white grouper (*Epinephelus cyanopodus*) is not a common sight at Kwaj, but a whole group of them hangs around the Daisan. A diver swims toward the stern along the port gangway. Five ulua (or jacks) pass over him. As we drop into the same gangway, one of the supports passes upward in front of the lens. The slight list of the wreck permits a buildup of sand against the cabins walls. A little farther aft, a diver looks in through a doorway. Looking inside and panning upward, more cardinalfish fill the spaces within. On the floor, the neck of small bottle protrudes from the sediment. (8)

26:03 Just above and forward of the stern, this door (opening on the other side) leads down into the ship. A black coral bush grows out the door. On the port gangway, we approach the stern. Nearby, we pan by a porthole, seeing orange sponge encrusting the bulkhead and cardinal fish clustered among black coral branches. There can be so many cardinal fish on the fantail that the view of the wreck is almost obscured. Where there are cardinal fish, there will be large lionfish (*Pterois volitans*) as well. The Daisan has many of these predators. There seems to be an unending supply of cardinals for them to devour, and the lions always look like they have full

stomachs. One passes over the cabin structure past whip and fan corals. This shot starts a "rogues' gallery" of lions that will end our tour of the Daisan. (10)

Palawan – Bigej Wreck

26:44 – 30:54

26:44 The Palawan, also known as the Bigej wreck, is the most recent of the large wrecks found at Kwajalein. The existence of a good-sized wreck at Bigej was rumored since the 60s, although some rumors had it on the other end of the island, near Bigej Pass. Dan Bailey, in *WWII Shipwrecks of the Kwajalein and Truk Lagoons*, sketched out a rough map of where the battle reports indicated the ship should have sunk. Many searches for the ship were undertaken with no success. A few years ago, a snorkeler claimed to have swum across it, touching off an armada of boats heading to Bigej to find the new wreck. Again, there was no success. Finally, on April 26, 1992, an extensive search by Gordon Jones located it pretty much just downwind of where Bailey's sketch said it sank. The ship, identified as the Palawan, is a medium sized aft engine freighter with two holds taking up most of the ship. She sits upright on a 160-foot bottom, facing northeast. Like the Daisan, she supports a nice growth of black coral bushes. Originally from the Philippines, the Palawan was scuttled prior to her capture by the Japanese in WWII. Raising her from the bottom, the Japanese used the Palawan in the war effort until 31 January 1944, when artillery shelling from the US Destroyer Harrison sent her back to the bottom. (2)

26:50 The mooring buoy is attached to the aft mast. Resting on the mast and looking aft, a school of caesionid fish passes in front of the smokestack. Forward, we look down into the rear hold and pan slowly aft until some deck winches are directly below. A diver pauses to examine something on deck. Swimming forward, we approach the forward mast, vents, and bow. (6)

27:23 This is the pointed bow. Small fish swim down toward the deck. Over the bow, we see the anchor chain leading off into the sand, even though the ship was underway when attacked. From a bit more forward, we pan up the ship, over the top of the bow. Several ulua come racing up to try to take advantage of any disruption caused by the diver; the cardinalfish may be distracted by the presence of a large bubbling creature and become easy prey to the swift predator. The camera pans slowly from the port rail along the communications cable, across the bow winch and starboard rail, and follows the cable down into the sand. (5)

27:53 The forward mastpost has a large bush of black coral at its top, seen here from both aft and forward. Near the top, on a small platform on the forward side of this mast is a squashed masthead lamp, apparently damaged in the shelling that sank the ship. The bright red on the lamp is an encrusting sponge. Dropping back down to the foredeck, a 7 to 8-foot long nurse shark is visible through the open decking. A remora (sharksucker) swims over the back of the shark. The "suction cup" used by the remora to adhere to the shark is on the top of its head, so we're seeing it swim around here upside down. It briefly turns its head over to scratch its chin on the shark's rough hide. Moving through the roof and into the foc's'le, we can view the entire shark. The remora is now on the left pectoral fin. Also in the foc's'le, is a porthole on the aft bulkhead. The glass porthole door is missing. A close view shows one of the brass "dogs" used to screw down and seal the glass porthole door when closing the window. Just outside the porthole on the main deck, a red grouper (*Cephalopolis miniata*) disappears down into one of the air vents. (9)

28:32 Aft of the holds, we approach the superstructure on the starboard side of the ship. The aft mast is to the right. On the starboard side of the stack, next to a coral encrusted vent, a small grouper swims through a dense aggregation of cardinalfish. Back toward the midline of the ship, a view aft from the mastpost shows apogons swarming over the deck with the stack and vents to left, davits on the right, and broken pipes and vents in the foreground. The bridge, which

apparently fell away during sinking, would have been on top of this deck between the aft mast and the stack. Another scene shows blue caesionids (*Caesio teres*) milling around the stack and vents. As on many of the other wrecks, the wooden decking has vanished over the years, leaving only steel girders scattered with small coral colonies to mark the deck levels. (6)

28:58 From the front of the superstructure, we look aft along the starboard rail. Decking and ceilings are gone here also, leaving only the ribbing. An ulua cuts through the upper right corner of the view. Moving down the hall, a sink appears hanging on the starboard rail. Most likely torn from the bathroom in the attack, it fell and was caught on the rail. A little farther, the rail rounds the stern, with a doorway into a small room on the right. Continuing around this deck level to the port side of the ship, a look through back to starboard shows a doorway in a grated wall. Moving forward along the port side of the ship, a red grouper retreats. In the background, portholes decorate the steel bulkhead. Continuing along the hallway, we pass portholes, some rimmed with feathery, stinging hydroids. A regal angelfish (*Pygoplites diacanthus*) moves out of the way. (7)

29:28 Back on the upper deck, three divers swim aft around the port side of the smokestack. Right on the stern sits a steering wheel. I suspect this wheel may have been used for maneuvering the ship in reverse, since to operate this wheel, a person would have to stand in front of it and face the stern of the ship. A school of blue caesionid fish (*Caesio teres*) pass in front of the wheel. (3)

29:41 From beyond the stern, this view looks back toward the ship and pans down the stern, showing the presence of several deck levels. Down near the sand are the twin screws that pushed the ship. On the stern itself, the name "Palawan" is said to be written, as is the home port of Manila. Hidden in the rust and growth, we can make out the first two letters in Manila. Rising up, we look forward toward the smokestack and more distant mastpost. One level down, we look back up through the ceiling girders and see the cardinalfish enshrouded aft steering wheel. From the aft end, we look back over the wheel toward the stack. Cardinalfish are thick, and a bat fish soars overhead. On another day, the fish are gone; the wheel and stack appear naked without their coat of cardinals. (7)

30:20 Time to return to the surface. We look up the mastpost ladder, then climb it. From the crosspiece, we pause for a look at a diver making a last pass through the superstructure decking below. The diver then approaches the camera up the mastpost ladder. Looking straight down aft of the mast, we see the engine hatch covers and pan slowly up the stack. We take a last look at the edge of the mastpost and marine growth. A bat fish hovers off to one side. (7)

Prinz Eugen

30:55 - 35:28

30:55 The German heavy cruiser Prinz Eugen can only marginally be considered a World War II wreck of Kwajalein. True, it is a wreck, it is at Kwajalein, and it was a ship of World War II. However, it did not sink during the war but more than a year after it ended, following nuclear tests at Bikini Atoll. Still, as the only large warship sunk within the lagoon, and because it is a ship so rich in history, the Eugen is a popular and impressive dive. The Eugen is nearly 700 feet long, making her the largest wreck in the atoll. When afloat, she carried a crew of 830 and required extensive facilities, dining areas, living quarters, and so on. Although an accident in the early 1970s that cost the lives of two divers prompted the US Army authorities to forbid internal exploration of the Eugen to divers from Kwajalein, there is still plenty to see on the outside and by looking in through hatches and portholes. (2)

31:01 There are several ways to tour the Eugen. One way is to anchor near a coral patch reef near the bow, and drop straight down under the bow on the island side and work your way

shallower toward the stern. This video tour, however, begins at the stern and works down to the bow, with a return over the top of the massive ship's hull. One of the ship's three large propellers is barely submerged on the shoreward side of the hull. The middle prop is completely out of the water, as seen in the opening credits. The third prop, the port one, was removed in the 1980s and is now on display at a museum in Germany. In the first scene, the propeller and long shaft are visible through the sun's flickering light rays. Another shot of the propeller with a diver swimming below gives it some perspective. (2)

31:09 From the stern, we look forward towards the bow. Moorish idols swim across the deck. Recall that this ship is upside down, which wreaks havoc with perspective. For most of the scenes of the Eugen, you have to keep remembering that what's up was the floor, and what's down was the ceiling. A structure on the gunnel of the stern has become an attachment point for coral heads and a haven for small schooling fish. On the stern deck, an open hatchway leads up into the ship. Looking up through the hatchway, we see some air from diver's bubbles is trapped on the floor above. Leaning into the hatch, we can see through another door leading into the enlisted men's mess room. Chairs are still scattered about the ceiling. Panning up to the floor, we see the table stands; the wooden tables have long since rotted away or broken free, leaving bare bolts sticking into the stand tops. (5)

31:29 Outside the hatchway, we look forward at some of the cruiser's main armament, a pair of 8-inch guns. A diver swims over the barrels. The gun has fallen out of its turret, leaving the large barrels lying in the sand. There are two sets of stern 8-inch guns, one set over the other. The upper barrels, not visible in the video, are nearly buried beneath the lower. Another set of 8-inch guns (not shown) is on the bow. (1)

31:33 From the stern, we swim forward along the port gunnel. Here in the shallows are numerous colonies of branching coral surrounded by clouds of damselfish. As we progress deeper, the corals thin out. Superstructure begins to appear below the ship's edge. A large ball now lying on the bottom is said to have contained fire control equipment, presumably a high priority for a ship intended to go into battle. There were several of these on the Eugen. A surgeonfish vents some excess sand he's picked up from grazing on algae. Turning back to the ship, we follow a sponge covered ladder, then look down upon the four barrels of a set of anti-aircraft guns. (6)

31:57 Back in close to the hull, we see a diver's light from farther down the wreck. Underneath the hull here are doorways going into the wreck. Looking into one door, a porthole is visible across a room. Approaching another door, we see the tail ends of four large torpedoes. Looking closer, only one of the four still retains its propeller. On the other end of the torpedo room, we approach and look into a porthole, where we see the nose end of one of the torpedoes seen in the previous scenes. Right next to the torpedo room is a small crane. I assume the crane lifted the torpedoes for placement in the launcher. (8)

32:31 Just forward of the torpedo room, we look forward at what appears to be some sort of upside down turret. A diver enters the scene from the right, then approaches and looks inside a doorway. After leaving the doorway, the diver swims along the bulkhead and approaches the camera. In front of the same doorway, moorish idols swim around, grazing on encrusting sponges growing on the walls. The moorish idol finally swims upside down in front of a porthole. Looking into doorways often reveals piles of unrecognizable debris resting where it had fallen from the floor above. Looking closer at one of the junk piles, we see a caged lamp amidst the rubble. A sink lies on the ceiling where it fell from the floor. Still bolted to the floor, an upside down bathtub has a odd appearance. Looking through another doorway from the outside,

we see another door tied open. Prior to 1972, the interior of this ship was open for exploration. Possibly, divers from those days tied doors open like this to make sure they did not get closed while they were inside. Coming up to yet another door and looking inside, we see a hatch on the floor above, leading up into the lower decks. (12)

33:19 Near the forward part of the superstructure is a hallway that leads completely through the ship. Looking down the hallway from the port side, not much can be seen; the starboard end of the hall opens in the dark shadow of the hull meeting the lagoon slope. Looking up from the starboard door, however, the opposite doorway is backlit by the open water and sky, shown here with a diver at the far end. Close by are two portholes, their glass doors open. From the outside of the ship, a closed porthole is camouflaged by algae and coral growth. (3)

33:33 When the ship rolled over and down the slope, part of the tall superstructure broke off. Now it rests on the bottom, slowly sinking into the sandy substrate. Panning back toward the ship, we see what appears to be an observation platform. Continuing to pan toward the ship, we look at another of the large ball structures, presumably for file control equipment. Across the ball, we see the ship behind. Just forward, these two-barrel guns are larger than the anti aircraft guns seen earlier. Near the edge of the deck, two posts were used to loop dock lines over in port. (5)

34:02 Now under the bow in front of the superstructure, we look in the direction of the island and see a diver coming down the reef under the edge of the hull. At a depth of about 100 feet here, the light under the hull is dim. Two divers with flashlights examine the underside of the bow. Still looping from the foredeck is the Eugen's large anchor chain. A diver in the distance swims towards the forward end of the chain, where a large anchor still rests in the stowed position. An emperor angel retreats into the hole through which the anchor shaft extends. Just forward of the anchor is the very front tip of the bow, seen here from underneath. Coming out from underneath the bow and a bit to its port side, we pan up the bow. A diver approaching the bow gives an indication of its size. As we run out of bottom time, we have to move shallower. A diver rises up the side of the massive hull, then in shallower water across the top of the hull. Panning across the top, we see numerous coralheads grown up in the 50 years since the ship went down. (11)

34:55 Near the surface, bubbles of oil seep out a breach in the hull. Since this mighty warship foundered here, oil has been slowly escaping from the hull. How much more can there be? A few larger bubbles of oil spill out and rise toward the surface. When they reach the surface, the oil forms fractal-like patterns. (4)

35:10 Arriving back at the aft end of the ship where we began, we pan the flickering pattern of light rays along the rounded stern. We take a final look at the large prop before exiting the water. Panning upward to the right, we can see the dry prop through the glassy water's surface. (2)

25:29 If we rose straight up out of the water from the last shot, we'd be close to here. Now the late afternoon sun reveals the orange color in the rusting hull. A bit later in the afternoon now, the light on the hull is dimming. A near full moon is in the sky at left. From the other side of the hull, the sun peeks from behind a cloud in the west, putting a glare on the surface of the water between the prop and rudder. Closer, the glare from the sun is bright. The scene fades away. (4)

We thank each of a number of Kwaj divers who demonstrated their talents in this film. In no particular order, they include:

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This tape was produced by non-linear editing using a P-166 based PC. Video footage was captured to disk using a Quadrant Qmotion PCI card. Editing was done using Adobe Premiere 4.2.

Music is by Michael Brewer of QCCS Productions. Individual pieces are as follows:

Dreams	Introduction, above water wreckage
Memories	Akibasan Maru
Quest	Ikuta Maru and G-Buoy Wreck
Remember	Tyoko Maru

Sundown	Safety Stop and Rubble Wrecks
Departures	Shell Island Wreck
Sailing	South Shell Wreck
Currents	Daisan Maru
Tenderness	Palawan
Regalia	Prinz Eugen
Dreams	Prinz Eugen above water

In-Depth Images, Kwajalein
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